

WHAT IS CLAIMED IS:

- 1 1. A method to achieve thermal transfer between a workpiece disposed
2 within a chamber having a heated body disposed therein, said method comprising:
3 placing said workpiece at a first position within said chamber, spaced-apart from
4 said heated body a first distance;
5 establishing said pressure within said chamber to be at a predetermined level;
6 placing said workpiece a second distance from said heated body to effectuate
7 thermal transfer between said body and said workpiece, with said second distance being less than
8 said first distance.

- 1 2. The method as recited in claim 1 further including maintaining said
2 workpiece in said second position until thermal equilibrium between said heated body and said
3 workpiece is achieved.

- 1 3. The method as recited in claim 1 wherein establishing said pressure
2 further includes increasing a pressure level within said chamber by filling said chamber with a
3 gas.

- 1 4. The method as recited in claim 1 wherein establishing said pressure
2 further includes decreasing a pressure level within said chamber by evacuating said chamber.

- 1 5. The method as recited in claim 1 wherein pressurizing said chamber to a
2 predetermined level further includes filling said chamber with a nitrogen gas to achieve a
3 pressure in the range of 25 to 100 Torr.

- 1 6. The method as recited in claim 1 wherein said second distance is in the
2 range of 0.001 to 0.009 inch.

- 1 7. The method as recited in claim 1 wherein said first distance is greater than
2 0.75 inch.

- 1 8. The method as recited in claim 1 further including decreasing said
2 pressure in said chamber to establish said pressure level to be in a range of 1×10^{-5} to 1×10^{-7} Torr.

- 1 9. The method as recited in claim 8 further including providing a write
2 chamber and moving said plate, after increasing said pressure, to said write chamber.

1 10. A method to achieve thermal transfer between a workpiece disposed
2 within a chamber having a heated body disposed therein, said method comprising:
3 placing said workpiece at a first position within said chamber, spaced-apart from
4 said heated body a distance;
5 evacuating said chamber to a first pressure level
6 reducing said distance; and
7 evacuating, after reducing said distance, said chamber to a second pressure level,
8 less than said first pressure level, with said distance being selected to effectuate thermal transfer
9 between said workpiece and said heated body while reducing thermal variations due to
10 evacuating said chamber to said second pressure level.

1 11. The method as recited in claim 10 further including pressurizing said
2 chamber to a level in the range of 25 to 100 Torr by filling said chamber with nitrogen before
3 reducing said distance.

1 12. The method as recited in claim 11 wherein reducing said distance further
2 includes reducing said distance to position said workpiece from said heat body in a range of
3 0.001 to 0.009 inch.

1 13. The method as recited in claim 10 wherein evacuating, after reducing said
2 distance, said chamber, further includes evacuating said chamber to establish said pressure level
3 to be in the range of 1×10^{-5} to 1×10^{-7} Torr.

1 14. The method as recited in claim 11 further including providing a write
2 chamber and moving said plate, after evacuating said chamber to said second pressure level, to
3 said write chamber.

1 15. A system to achieve thermal transfer between a workpiece disposed within
2 a chamber having a heated body disposed therein, said method comprising:
3 means for placing said workpiece at a first position within said chamber, spaced-
4 apart from said heated body a first distance;
5 means for establishing said pressure within said chamber to be at a predetermined
6 level;
7 means for placing said workpiece a second distance from said heated body to
8 effectuate thermal transfer between said body and said workpiece, with said second distance
9 being less than said first distance.

1 16. A system to achieve thermal transfer with a workpiece, said system
2 comprising:
3 a chamber;
4 a rapid thermal conditioning system including a rapid thermal conditioning plate,
5 disposed in said chamber;
6 a lift mechanism, upon which said workpiece is positioned, disposed in said
7 chamber to vary a distance between said plate and said rapid thermal conditioning system;
8 a supply of fluids in fluid communication with said chamber;
9 a vacuum system in fluid communication with said chamber; and
10 a process control system in data communication with said lift mechanism, said
11 supply of fluids, and said vacuum system in fluid communication with said chamber, said
12 process control system including a memory having embodied therein a program including a first
13 set of instructions to control said vacuum system to establish a pressure within said chamber at a
14 predetermined level and a second set of instructions to control said lift mechanism to position
15 said workpiece a predetermined distance from said rapid thermal conditional plate; and a third
16 set of instructions to control said vacuum system to evacuate, after reducing said distance, said
17 chamber to a second pressure level, with said second pressure level being less than said first
18 level and said distance being selected to effectuate thermal transfer between said workpiece and
19 said heated body while reducing thermal variations due to evacuating said chamber to said
20 second pressure level.

1 17. The system as recited in claim 16 wherein said second set of instructions
2 further includes a subroutine to cause said lift mechanism to position said plate a distance from
3 said rapid thermal conditioning plate in the range of 0.001 to 0.009 inch.

1 18. The system as recited in claim 17 wherein said supply of fluids includes a
2 nitrogen gas with said first set of instructions including an additional subroutine to cause said
3 fluid system and said vacuum system to fill said chamber with said nitrogen gas to a pressure in
4 the range of 25 to 100 Torr.

1 19. The system as recited in claim 18 wherein said program further includes a
2 second subroutine to control said lift mechanism to increase said distance and said third set of
3 instructions includes an additional subroutine to control said vacuum system to decrease said
4 pressure to said second level, in the range of 1×10^{-5} to 1×10^{-6} Torr.

1 20. The system as recited in claim 16 wherein said rapid thermal conditioning
2 system further includes a rafter section lying in a first plane, and a plurality of supports
3 connected to said rafter section, with said supports extending from said first plane, terminating in
4 a foot lying proximate to a second plane, spaced-apart from said first plane, with a subset of said
5 plurality of feet including a positional sensor assembly, with said first and second plane being
6 spaced-apart said distance.

1 21. The system as recited in claim 16 wherein said rapid thermal conditioning
2 plate includes a plurality of fluid channels disposed therein and further includes a supply of
3 heated fluids in fluid communication with said plurality of fluid channels.

1 22. The system as recited in claim 16 wherein said plate has a cross-sectional
2 area less than said rapid thermal conditioning plate.